

Listing of Claims

1. (cancelled)

2. (previously presented) A method as defined in claim 24, further comprising the step of determining the optimization of the adjustable parameters by target data selected from the group consisting of editable target data and storable target data.

3-4. (cancelled)

5. (previously presented) A method as defined in claim 24, further comprising the steps of editing and storing the machine-internal data, the machine-external data and the output data by the diagnosis data processing system.

6. (previously presented) A method as defined in claim 24, further comprising the step of operating the diagnosis data processing system in a time controlled manner.

7. (cancelled)

8. (previously presented) A method as defined in claim 24, further comprising the step of using a traveling speed, a rotary speed of at least one threshing drum and/or the rotary speed of a blower of at least one cleaning device as the adjustable parameters to be optimized.

9. (previously presented) A method as defined in claim 24, further comprising the step of using a crop-specific and/or machine-specific parameter as the further parameter; and performing the determination of the further parameter by sensors which are in operative communication with the machine or by inputting.

10. (previously presented) A method as defined in claim 9, further comprising the step of using a parameter selected from the group consisting of a grain loss, a grain throughput, a crop moisture, a crop total throughput and a broken corn portion as the further parameter.

11. (previously presented) A method as defined in claim 9, further comprising the step of using adjustment regions for parameters of working units of the machine as the further parameter.

12. (previously presented) A method as defined in claim 5, further comprising the steps of generating the machine-external data by external

systems and using plant-specific data, geographic data, weather data and/or external expert knowledge as the machine external data.

13. (previously presented) A method as defined in claim 12, further comprising the step of using crop and/or data and experience knowledge as the external expert knowledge and as internal expert knowledge.

14. (previously presented) A method as defined in claim 24, further comprising the step of processing a diagnosis selected from the group consisting of process diagnosis, case diagnosis, and model-oriented diagnosis with the chosen process algorithm of the diagnosis data processing system.

15-17. (cancelled)

18. (previously presented) A method as defined in claim 24, further comprising the step of generating changed process algorithms by the data processing system depending on machine-interior data and machine-exterior data and with consideration of changeable target data.

19. (previously presented) A method as defined in claim 24, further comprising the step of generating changed specific situation patterns by the data

processing system in dependence on machine-interior data and machine-exterior data and with consideration of changeable target data.

20. (previously presented) A method as defined in claim 24, further comprising the step of storing process algorithms, specific situation patterns or both in data sets, wherein the data sets include at least a part of machine-internal data, machine-external data and target data.

21. (previously presented) A method as defined in claim 24, further comprising the step of incorporating in diagnosis data processing system specific situation patterns and associated process algorithms and/or optimized adjustable parameters to be available for further machines.

22. (previously presented) A method as defined in claim 24, wherein the machine is an agricultural harvester; and further comprising the step of defining at least one process algorithm depending on harvesting conditions of the agricultural harvester.

23. (previously presented) A method as defined in claim 24, further comprising the step of adapting the process algorithms by analysis and evaluation.

24. (previously presented) A method of optimization of adjustable parameters of at least one machine using a diagnosis data processing system, comprising the following steps:

defining a plurality of specified situation patterns according to data selected from a group consisting of machine-internal data, machine-external data, target data and combinations thereof;

defining a plurality of process algorithms that modify current parameter settings to optimized parameter settings, each of which corresponding to one of the plurality of specific situation patterns;

detecting an instant situation pattern according to sampled data selected from the group consisting of machine-internal data, machine-external data, target data and combinations thereof;

selecting a process algorithm from the plurality of stored process algorithms by comparing the detected instant situation pattern to the stored situation patterns to identify both a stored situation pattern most closely corresponding to the instant situation pattern and the process algorithm corresponding thereto; and

executing the identified process algorithm to optimize the machine adjustable parameters for the detected instant situation pattern.